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ABSTRACT

Appropriate school facility design promotes a balance between student freedom and control. This report evaluates research on architectural approaches affecting student control and offers design recommendations. Since 1960, school discipline and vandalism problems have exploded. Senator Birch Bayh's committee reported that certain crimes are influenced by the physical setting; a logical design provides both small and large groups to work with indirect supervision. Districts have obtained federal grants to reduce vandalism, following Oscar Newman's concept of "defensible space." Three areas of design concern should be addressed: (1) spatial relationship, (2) high visibility, and (3) comfort and information. A good spatial relationship requires a distribution of adult flow space and workstations throughout student use areas. Since vandalism and discipline problems increase with school size, reversal of the trend toward large schools could ease problems. To ensure high visibility, staff offices should be in visual contact with common use areas. Visual control allows indirect supervision without increasing workload and permits students controlled freedom. Attention to comfort and information may reduce unacceptable student behavior. Such behavior, which often results from stress, signals that needs are not being met. Noise, harsh lighting, and improper color contribute to stress. Acoustic controls, full spectrum lighting, and comfortable color schemes promote relaxation. To reach full potential, a facility should incorporate visual student control into its design. Twenty-five references are appended. (CJH)

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STUDENT CONTROL AS A PLANNING AND DESIGN FACTOR IN EDUCATIONAL FACILITIES

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In his book, Work Place for Learning, Lawrence Perkins (1957) proposed that the needs and functions of a school facility must be studied closely by the teachers, administrators and architects in charge of its design to ensure that all the elements best serve the users. One of the most important conditions for education is student control, yet throughout history, it has been taken for granted. The student body of a building, the class in each individual classroom and the evening visitors returning for athletic events, drama practice or even unauthorized gatherings, must be controlled. Due to recent movements protecting individual and student rights, more and more of the responsibility for that control rests with the design of the facility itself.

It is the purpose of this paper to relate the role of the facility to the sometimes monumental task of controlling students.

DEFINITION OF CONTROL

The concept of student control has undergone vast changes during the past several decades. From the early philosophy in American schools, that required students to "Sit Down, Shut Up and Learn," through the era in which the courts awarded students the same rights as other humans, to the current "student advocacy" position which has been placed upon teachers, administrators and school boards, the

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span of control procedures has been narrowed drastically. Most states in the United States now have laws prohibiting or restricting the paddling of students. The requirement that students be controlled, however, has remained intact. Without some amount of student control, formal education, as it is currently known in the elementary and secondary schools, would be impossible. The actual range of student control concepts still reaches all the way from holding their attention to actual physical restraint.

Student control can be considered the converse of student aggression, meaning any action or state of being which prevents, acts against or reacts to aggressive action taken by students whether that aggression is taken against other persons or against property.

Technology today would allow building designs to incorporate all three situations, however, it is much easier, cheaper, and more logical to operate within the "prevents" domain.

Vandalism

One serious side of student aggression results in vandalism, which Greenberg (1969) defines as, "acts that result in significant damage to schools." Other researchers have studied these acts of aggression from the view of perpetrator motivation, identified by Martin (1961) as: Predatory, Vindictive and Wanton; and from the view of perpetrator perception, as identified by Cohen (1971) as: Acquisitive, Tactical, Ideological, Revengeful, Playful and Malicious.

Discipline

The term discipline carries a wide variety of connotations related to the control of activities of people within the range that others find acceptable. Most of the definitions, relate to some degree to training or education. For purposes of this paper, the term will be used to refer to controlling or preventing unacceptable actions against other people.

Fenichel (1966, p. 17) stated ". . . A teacher who fosters self-discipline, emotional growth and more effective functioning is doing something therapeutic. Any educational process that helps to correct or reduce a child's distorted perceptions, disturbed behavior and disordered thinking and that results in greater mastery of self

and one's surroundings is certainly a therapeutic process."

The constant teaching of discipline, not just at times of stress, is required. Dreikurs et al. (1971, p. 80) listed ten do's and eight don'ts plus a set of concrete suggestions to curb violence. Natural consequences, meaning no interference by adults, was explained using the example that "The child that refuses to eat will go hungry." Logical consequences, meaning that the results were arranged or applied, included the example that "If the child spills his milk he must clean it up." The only weakness found in the philosophy was in the fact that the authors could not find any documentation of application.

This view of discipline relates only to the control exerted by one human over another human. The contention of this work is that the educational facilities exert a strong influence over all individuals that come into contact with them. With that premise, any facility that fails to help correct or reduce those same perceptions, behaviors and thinking, or that fails to foster that same self-discipline, emotional growth and more effective functioning is just as great a failure as the errant teacher or educational process. In short, the educational facility can play a strong positive, yet passive, role in the discipline, growth and maturation process of students.

NEED FOR CONTROL

Prior to 1960 both discipline and vandalism problems were very uncommon and very minor. Most could be handled at the scene or perhaps with a friendly telephone call to the parents. From the early sixties, through the present, however, both types of problems have virtually exploded in both volume and voracity.

During the last quarter of a century, America has witnessed a tremendous increase in acts of aggression in the schools. The incidence of "unorganized fighting" increased from 2.8% in 1961 to a high of 18% in 1974. A similar report from the research of Senator Birch Bayh enumerates the assaults upon teachers as approximately 18,000 in 1955, 41,000 in 1971, and an enormous 110,000 in 1979. During the same period, the acts of aggression toward property increased parallel to the aggression toward people. (Goldstein, 1984, pp. 5-8)

Economic and Legal Needs: The National Education Association (1977) reported that the monetary cost to taxpayers, including direct destruction and associated increases in insurance and security costs, increased from approximately \$100 million in 1969 to approximately \$600 million in 1977. By that year in fact, of the 84,000 schools in America, over 24,300 (29%) were reporting major vandalism each month. By 1983 the cost of vandalism, nationally, had become equal to the cost of textbooks.

The authority of teachers and other school personnel is defined in most state legal codes and generally is stated as the equivalent to, "the teacher shall stand in the place of the parent or guardian in exercising authority over the school, and shall have control of all pupils enrolled in the school from the time they reach school until they have returned to their respective homes." Teachers must be proven guilty before they become liable for negligence, however, in recent years, more people have been trying to prove teachers negligent regarding their children's safety and educational growth. It is very important that teachers monitor students throughout the building all day. A facility with "visual student control" designed in, will do much to promote safety for all students and to relieve the threat of legal action from the teachers, administrators and school boards.

Little direct research has been conducted which relates the design of facilities and the actions and attitudes of the users. However, it is well known that the design of American school facilities has undergone major metamorphosis since the early sixties. The average school building in use today is probably somewhat newer, a good bit larger, and perhaps of better quality overall. The latter because although not as durable, it is more flexible and therefore perhaps more responsive to current needs. At the same time, the later buildings have become less personal, through the process of consolidation and growth, less observable, through the inclusion of cubbyholes and small study areas to blend with new educational philosophies, and less patrolled, through the addition of teacher lounges and teacher restrooms.

Humans and other animals react to the conditions in which they find themselves. Cages sometimes create the need to escape, open highways may cause drivers to accelerate, and low ceilings help develop an atmosphere of coziness. A school facility designed with unmonitored dark spaces and "cubbyholes" may cause students to take

actions that they would not take in well lighted, open spaces. Many discipline problems and a vast amount of "time on task" losses occur in areas that are not visible to administrators, teachers and other students. Also, most destructive vandalism is found in such areas. Therefore, school facilities should be designed to create the illusion that all areas of student use are easily monitored. While visual student control is not the only function necessary, it is an important asset to any educational institution. The lack of visual control can be a serious liability to facilities of improper design. When visual student control is designed into the facility, students are discouraged from mischievousness, loitering and vandalism. When these same actions go undetected, due to poor visual control, further problems are promoted.

There is no attempt here to fix the blame for greater discipline and vandalism problems upon the school facilities or upon the administrators, teachers, planners and designers of those facilities. However, the Bayh committee (Goldstein, 1984, pp. 5-8) reported, "... that a relationship exists between the physical setting and the behavior that takes place there and that the propensity for certain crimes to occur can either be enhanced or diminished by this setting." School administrators and facility planners must seek to reduce direct aggression against people and property and the associated economic losses by taking these factors into account when planning new buildings or remodeling older structures.

An environment which allows both large and small groups of students to be together both socially and scholastically provides those students room to grow intellectually, and to develop both personality and confidence. Such an environment which allows those same students to associate without direct supervision, promotes freedom and responsibility. However, totally unsupervised grouping leads to problems of discipline, vandalism and reduced time on task among students with poorly developed self-discipline. The logical design for improving school effectiveness would allow for small and large group work in an atmosphere of indirect supervision. The use of glass and the placement of study areas adjacent to areas frequented by adults serve well in such cases. Students will not feel spied upon, yet they will know that their actions are observable. Teachers will not have to feel like wardens and guards by patrolling closed, dark or out-of-the-way spaces, yet they will shoulder the responsibility of monitoring students. In effect, the facility carries much of the

responsibility of controlling and promoting good behavior by discouraging bad behavior.

While much research has been conducted on the nature and occurrence of discipline and vandalism, the researchers have mostly attempted to relate their findings to administrative and management functions rather than the design of the physical structures. In a recent work on the topic, School Violence, Goldstein et al. (1984, p. 7), stated that student aggression, whether in the form of student and teacher attacks or attacks against property have been found to occur most frequently where arbitrary leadership and severe disciplinary actions were in existence. Conversely, where the administration displayed "a firm, fair consistent principal-leadership style" there was a low level of student aggression. Additional findings indicated that larger rates of reported aggression occurred in the larger schools and that crowded areas of the buildings such as hallways, stairways, cafeterias, laboratories, entrances and exits, and locker rooms produced the largest number of aggressive acts. The authors either ignored or omitted another characteristic of each of the places identified as harbingers of violent acts and one that very logically could precipitate such acts. They are all usually designed in such a manner that they are least directly observable from other locations and are therefore difficult to monitor.

Relation to Effectiveness: School effectiveness has been studied extensively during the past few years and the findings have all centered around "time on task," "student attitudes," "teacher attitudes," and other teaching and learning conditions. Student behavior and student control can be strongly and directly affected by student and teacher attitudes. The primary reason for the existence of an educational structure is to facilitate learning. It must be kept in mind that the steel, brick, stone or wood of a school building creates much more than a shelter. A mesoenvironment is created inside those walls that can have a positive or negative effect upon student and teacher attitudes. That environment must lend itself to the development of each student's total potential and it is the duty of the designers and planners to help create a proper balance between freedom and control.

DESIGN FEATURES FOR CONTROL:

Research has indicated that open spaces while excellent for special growth are not generally as effective for certain types of learning activities as conventional classrooms. Don Beeken and Henry Janzen (1978) cited studies indicating that greater teacher-pupil interaction, more independent study, more pupil questioning and more time on task occurred in closed classrooms. Most likely this was due to the fact that a feeling of monitoring existed.

The use of glass as a space divider and as a sound barrier has gained acceptance because it does not create a closed-in effect yet provides needed monitoring. According to Dr. John Zeisel (1976) of the School of Design at Harvard University, however, the use and misuse of glass must be examined carefully since its breakage and replacement costs represent the largest vandalism expense incurred by schools.

In the Practitioner's Guide to School Business Management, Greenhalgh (1978) listed fifty deterrents to vandalism including not only architectural recommendations but also landscaping ideas. He concluded that defense against malicious vandalism requires a variety of social, educational or legal measures, but added that many design and operational measures can provide resistance to random destruction.

"Design detail in the exterior of the building can encourage or hinder vandals," according to Sykes (1979). Projections, ledges, flat roofs, and hidden courtyards provide aids to unwanted entry. Windows with small panes of glass thwart entry without giving the illusion of a prison. Sykes provided numerous potential construction problems and remedies or precautions for each.

Later, however, Michael Casserly, et al. (1980) reported that "Genuine architectural efforts aimed at reducing vandalism are rare, especially in school systems unable to build new buildings." Several districts nationally have used grants from the Law Enforcement Assistance Administration to modify schools followed Oscar Newman's (1972) concept of "defensible space." Casserly (1980) described several advantages in using an architectural approach to reducing vandalism, including:

1. Specific vandalism problems are addressed.
2. Preventive measures are unobtrusive, and
3. Little long-range care is required.

Disadvantages exist, however, and they include:

1. Large initial capital outlay is required.
2. Options for existing buildings are limited, and
3. Specially trained architects are required.

PRIMARY AREAS OF DESIGN CONCERN

There are three primary areas in which concern should be shown, these include: spatial relationships, high visibility and general information, or general comfort.

Spatial relationship

Normal adult flowspace and workstations should be distributed throughout the areas of student use. Isolation of offices, workrooms, restrooms, lounges etc. from student use, congregation and flow areas causes either unplanned segregation or creates a need for major scheduling and planning to provide adult supervision of those areas. The latter presents such administrative problems, that some principals attempt to lock students out of some hallways, rooms and restrooms originally designed for their use. Design features do not have to produce drab, windowless fortress-like facilities. Since research studies show clearly that vandalism and discipline problems increase greatly with increases in school sizes, a reversal of the trend toward large schools could ease the problems. In addition to designing smaller facilities, more open and personalized structures are possibilities. Strategic location of the administrative offices can have a major impact on student control. Perkins (1957) advised that by making them easily accessible and designing them properly, they can seem a part of the learning structure and can become a part of student activities. Control is built-in rather than imposed upon the students. This concept is in agreement with Casserly's (1980) theory that building design can act as a deterrent to vandalism. When spaces are made a part of the natural flow of people, the premises are "watched" naturally. A Westinghouse study of locker rooms, corridors, stairwells and blind spots resulted in the report stating that "the propensity for crime in various areas of the school might be diminished through various design and use adjustments in these areas." (Crowe, et al., 1976)

High visibility

Many banks and stores have adapted surveillance procedures utilizing mirrors, two-way mirrors, and closed-circuit video recording equipment to both prevent theft and vandalism and trap the perpetrator. Some establishments advertise the use of such procedures even when they do not exist, as a deterrent to crime. In all these cases, the underlying concept is that when people are being watched, or think they are being watched, they are much less likely to break society's laws or mores.

An analogy might be drawn to Robert Burns' "Ode To A Louse" in which he alluded to the fact that people would project a different image if they knew they were being watched because they would be more aware of themselves. People stand their tallest when in front of a mirror. Perhaps one of the best controlling devices for human behavior is the mirror. Since they have many decorative features, perhaps more mirrors should be designed into the internal decor of schools.

Administrative offices and teacher offices should be placed in visual contact with lobbies, cafeterias and common areas, media areas, playgrounds, hallways and instructional areas. Since all such areas cannot be adjacent to the offices, a decision must be made as to which of these are considered most vital according to the type of programs to be offered and which areas are most likely to promote vandalism or discipline problems. Some of these areas can be located adjacent to and therefore supervised by persons normally in school receptionist areas. Teacher planning areas should be placed in visual contact with teaching stations, work rooms, student conference areas, etc. The use of glass and one-way mirrors will control noise, create privacy and discourage unwanted activities. Entrances to restrooms should be located in traffic areas with high visibility. Such planning can allow indirect supervisory functions of teachers, administrators, and service personnel without increasing their workload or consuming major portions of time. The properly designed facility can allow students to have controlled freedom, which promotes the growth of self-discipline and helps avoid the learned response which occurs when immature people "get-away" with something they know is wrong. Dead-end corridors and out-of-the-way rooms should be avoided in the design of educational facilities.

The American penal system exists as an attempt to reduce aggression through entrapment and active guarding. The theory behind rehabilitating prisoners begins with total confinement then changes to a gradual return of freedoms, under close surveillance. Mental institutions have long used a process of closed confinement to try and drive a person back inside himself. The concept of a "Time Out" room in schools for the mentally retarded has proved successful in helping to settle persons who become hyper-active.

During the past twenty years or so there have been numerous theories projected which suggest various methods of controlling the actions of people. William Glasser's "Reality Therapy" (1969), Albert Ellis' "Rational-Emotive Therapy" (Goldstein et. al., 1984) and those forwarded by Gold (1978), and Beatty (1977), plus Carl Rogers' "Client-centered Therapy" and the "Gestalt Therapy" of Fritz Perls all involve the application of ideas developed through humanistic psychology. They can all be categorized as using the "carrot and stick" method to provoke compliance with common mores and school policies. They each involve direct intervention by other humans through the promise of a reward or punishment. Each has been tried and tested in experimental and real life atmospheres with a modicum of success. The overall finding might be issued as a stronger commitment that people react differently to different situations. Some students need only a gentle reminder to conduct themselves in a manner deemed appropriate by the administration or the masses. For them, a direct threat of being caught might be enough. Other students react violently to even the mildest of reprimands. Visual control designed into the school facility can prevent aggressive behavior and, at the same time, give the would be aggressive youngster nothing tangible against which to react.

Human Comfort and Information

An atmosphere in which people do not feel comfortable can create problems. Sexton (1979) found that "vandalism occurs when the school environment is dehumanizing, and students lack a sense of belonging. They are less likely to destroy things they feel close to." A community atmosphere that does not contain high walls or iron bars should be designed that allows both students and the general public to feel they belong.

When student needs are not being met, either during class time, at lunch time or during recess, behavioral problems explode. Such needs can be met best when their actions indicate that they exist and that happens only when they are being observed. Unacceptable behaviors exhibited by students often are the result of "coping strategies" adopted by students when they are under stress. Stress, as described by Connors (1981), may be a "misfit between individual needs and environmental attributes." A common stress agent is disorientation. In very large facilities students can become lost or disoriented causing fear or, at the least, tardiness. Many design techniques, such as color coding can prevent negative attitudes and actions brought on by such conditions.

Kuller (1972) identified stress as one of the several primary emotions that can be affected by the physical features of a facility. Some of the major elements found in the interior of an educational facility that may contribute to human stress includes noise, harsh lighting and improper color. The produced stress often creates undesired actions found related to vandalism and discipline problems. Designs that provide acoustic controls and prevent unwanted noise and reduce auditory distractions; provide full spectrum lighting that reduces user fatigue; and provide comfortable color schemes that promote relaxation and attention will aid in the reduction of stress.

SUMMARY

Visual student control has not been researched in detail as a separate entity, however without its incorporation into the total design of an educational facility, there is little chance that any facility can reach its full potential. Future educational specifications must contain sections on this important subject to help reduce the time and effort spent by teachers and administrators, time that is much needed in other areas of school effectiveness and school improvement such as instructional leadership and planning.

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